

points out and distinctly claims the subject matter which Applicants regard as the invention. Claim 6 has been canceled because of possible 35 USC 112 defects and replaced by newly presented Claim 8. Newly presented Claims 9-11 are directed to the preferred embodiments of the present invention. No new matter has been added.

Claims 1-6 have been rejected under 35 USC 102(b) as being anticipated by, or, in the alternative, under 35 USC 103 as being obvious over either of Okamoto or Yuki. Claim 5 has also been rejected under 35 USC 103 as being unpatentable over Yuki in view of Okamoto et al. Applicants respectfully traverse these grounds of rejection and urge reconsideration in light of the following comments.

The present invention is directed to a separating agent used in the optical resolution of racemic modifications by liquid chromatography. As discussed in the present specification, polysaccharide derivatives have recently become very popular separating agents for resolving racemic modifications in that they exhibit an extremely high power of optical resolution. However, these conventional polysaccharide derivatives have problems in that, since they have a broad molecular weight distribution, polysaccharide derivatives of a low molecular weight tend to elute from a column during use, the steadiness of the baseline is poor during operation of the column and the types of solvents which can be used as the eluent is very limited.

In order to overcome the problems discussed above, the present inventor, as a result of exhaustive investigations, discovered that by providing a polysaccharide derivative having a ratio of weight-average molecular weight to number-average molecular weight of from 1 to 3 overcomes the problems associated with the prior art polysaccharide derivatives. This ratio indicates the extent of molecular weight distribution and is based on polystyrene. It is respectfully submitted that the prior art cited by the Examiner clearly does not disclose or even hint at the present invention.

The Okamoto et al reference discloses aromatic polysaccharide derivatives which are used as separating agents for optical isomers, geometric isomers and polymers having different molecular weight ranges. This reference does not speak at all of the problems associated with the elution of low molecular weight polysaccharide derivatives during the chromatographic separation process or suggest anything advantageous would occur by the presently claimed molecular weight distribution. Accordingly, it is respectfully submitted that the presently claimed invention clearly is distinguishable over this reference.

The Yuki et al reference discloses a separating agent used in the resolution of a mixture of optical isomers which comprises cellulose triacetate of the II type combined with a carrier. Like the previously discussed reference, Yuki et al has no disclosure with respect to the problems associated with the elution of low molecular weight polysaccharide derivatives during the chromatographic separation process or that anything advantageous would occur by providing the polysaccharide derivatives with a molecular weight distribution of from 1 to 3. As such, this reference adds nothing to the previously discussed reference and clearly does not disclose the presently claimed invention.

In the present specification, examples and comparative examples are presented which show the benefits associated with the present invention. Comparative Example 1 in Table 1 on Page 18 of the present specification clearly falls within the disclosure of Okamoto et al. The cellulose derivative of Comparative Example 1 is prepared according to the process of Okamoto et al and Yuki et al. As shown by the results given in Table 1, the comparative separating agent has a much longer baseline stabilization time and the amount of elution of low molecular weight polysaccharide derivatives is much higher than that of the present invention, which is negligible in Examples 1, 2 and 4. This is clearly unexpected in light of the prior art cited by the Examiner and establishes the patentability of the presently claimed invention.

The Examiner is respectfully requested to reconsider the present application and to pass it to issue.

Respectfully submitted,

TFC/smd

  
Terryence F. Chapman

FLYNN, THIEL, BOUTELL  
& TANIS, P.C.  
2026 Rambling Road  
Kalamazoo, MI 49008-1699  
Phone: (616) 381-1156  
Fax : (616) 381-5465

Dale H. Thiel	Reg.No. 24 323
David G. Boutell	Reg.No. 25 072
Ronald J. Tanis	Reg.No. 22 724
Terryence F. Chapman	Reg.No. 32 549
Mark L. Maki	Reg.No. 36 589
David S. Goldenberg	Reg.No. 31 257
Sidney B. Williams, Jr.	Reg.No. 24 949

Encl: Postal Card

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